



Patent
Application No. 10/020,413
Attorney's Docket No. 015290-555

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of)	
Rajinder DHINDSA <i>et al.</i>)	Group Art Unit: 1763
Application No.: 10/020,413)	Examiner: P. Hassanzadeh
Filed: December 18, 2001)	Confirmation No.: 9577
For: SHOWERHEAD ELECTRODE)	
DESIGN FOR SEMICONDUCTOR)	
PROCESSING REACTOR)	

DECLARATION UNDER 37 C.F.R. § 1.131 BY
RAJINDER DHINDSA AND ERIC LENZ

Assistant Commissioner for Patents
Washington, D.C. 20231

Sir:


We, Rajinder Dhindsa and Eric Lenz, hereby declare and state the following:

1. We are the inventors of the subject matter claimed in U.S. Patent Application Serial No. 10/020,413 ("the present application"), assigned to Lam Research Corporation ("Lam").
2. Exhibit I attached hereto is a photograph showing an electrostatic holding apparatus and an electrode plate of an apparatus for retaining an electrode plate in a plasma reaction chamber that was assembled at Lam's research facility in Fremont, California prior to March 30, 2001. The electrostatic holding apparatus has an electrode plate support surface, and the electrode plate has a lower surface and an upper contact surface. The electrostatic holding apparatus comprises a first dielectric layer, a conductive layer disposed below the first dielectric layer, and a second dielectric layer disposed below the conductive layer, the first and second dielectric layers comprised a compliant material (silicone). Process gas ports extend through the first dielectric layer, the conductive layer, and the second dielectric layer. The electrode plate comprises a showerhead electrode. The electrostatic holding apparatus is operable to compress the upper contact surface against an electrode plate receiving surface of a backing plate when the electrostatic holding apparatus is disposed upon an electrode plate receiving surface of the backing plate.

3. Prior to March 30, 2001, the electrostatic holding apparatus and electrode plate shown in Exhibit I were installed in a plasma reaction chamber of a semiconductor substrate processing apparatus located at Lam's research facility in Fremont, California. The plasma reaction chamber included a backing plate having an electrode plate receiving surface. When installed in the plasma reaction chamber, the electrostatic holding apparatus was disposed upon the electrode plate receiving surface of the backing plate, and the lower surface of the electrode plate faced a substrate support on which a substrate to be processed can be supported. The backing plate (and electrostatic holding apparatus) included process gas ports through which process gas could be supplied to the plasma reaction chamber. Power was applied to the electrostatic holding apparatus to compress the upper contact surface against the electrode plate receiving surface.

4. We hereby declare that all statements made herein of our own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Date: 11/3/03


Rajinder Dhindsa

Date: 11/3/03


Eric Lenz

An Electrostatic element is embedded between the two dielectric surface bonded to the Si shower head plate.

